

SOURCES



Primary microplastic

Sources for primary microplastic are: Industrially manufactured resin pellets destined to be made into plastic end-products (e.g., packaging); cosmetics with microbeads (e.g., peelings); fibres from synthetic textiles; particle abrasion from car tyres.



Secondary microplastic

Improperly disposed of plastic waste such as bottles and bags is a source of primary microplastic. Gradually, UV radiation, wind and waves break larger plastic waste into ever smaller pieces.

PATHWAYS

Rivers

Absent or insufficient sewage treatment and filter plants allow wastewater to carry primary microplastic into rivers and oceans.

Coasts / Beaches

Plastic debris carried into the sea by wind and tides is a source of secondary microplastic.

Ships

About 20% of plastic debris in the oceans, including fishing lines and nets, originate from ships.

MICROPLASTIC

Trillions of microplastic particles circulate through the world's oceans, from the Antarctic to the Arctic, both close to the surface and in the deep sea.

IMPACTS

Poisoning

Microplastic contains a range of chemical additives, such as plasticisers and flame retardants. These additives, as well as pollutants attaching to microplastic may cause tumours, infertility, genetic defects, abnormal development of larvae, and weakened immune system.



Persistent, bioaccumulative and toxic substances (PBTs), such as pesticides, heavy metals and PCBs, adhere on microplastic particles ($\varnothing < 5\text{mm}$).

Internal injuries and reduced fitness

Sharp edges of plastic particles may cause injuries to the intestinal tract of small animals like mussels or crustaceans, which result in inflammation and chronic stress. Microplastic accumulation in the stomach can also reduce food intake and compromise the animal's energy.



Even the tiniest plastic particles may have razor-sharp edges able to cause injury.

Fake food

Microplastic is taken in together with food. This problem affects a wide range of marine animals from plankton to crustaceans, mussels, worms, fish, sea turtles, whales, rays, basking sharks, and sea birds.



Zooplankton ingest microplastic. From here it goes all the way through the food web.

SOLUTIONS

Keep microplastic out of the water

Each of us

Avoid cosmetics that contain microbeads / Use microfibre catching bag or laundry ball.

Institutions

Ban the use of microplastic in cosmetics / Ensure resin pellet transports do not pollute the environment / Optimise fibre detention in synthetic textiles / Equip washing machines with fibre filters.



Avoid disposable plastic products

Each of us

Minimise buying and using disposable plastic. Use alternatives.

Institutions

Successively replace disposable plastic by recyclable synthetics or environmentally sound alternatives.



Proper disposal

Each of us

Disposal of personal plastic waste appropriately / Collect carelessly discarded plastic waste

Institutions

Professional waste management / Adequate structures for waste treatment and recycling.

